Midterm Review Sheet
(CPSC-454 Fall 2017)

Department of Computer Science
California State University, Fullerton

Time & Location:

Section 1 @ CS 110 B

Thursday, 10/19/2017 2:30pm—3:45pm

Section 2 @ CS 102 A

Thursday, 10/19/2017 4:00pm—5:15pm

Scope of the Exam:

1. Definition of Cloud Computing;
2. Virtualization Technologies;
3. Distributed Systems and Distributed Computing;
4. Cluster Computing;
5. Parallel Computing;
6. Data Center;
7. Openstack;
8. Introduction to SDN;

Sample Questions

1. What are essential characteristics of cloud? (hint: provide at least three characteristics) (3 points)

2. What are three tiers in SDN architecture? What functionalities does each tier have? (3 points)

A Sample Comprehensive Question

1. Suppose you want to establish a private cloud in CSUF and provide IaaS for students and teachers.

You have limited budgets can purchase a few servers and switches (e.g., 3 high performance servers and each server has 64G memory and 1T storage, and two high-speed switches). Your design goal is to provide remote desktop access for users (support 100 Linux VMs and or 30 Windows VMs). The existing Openstack design is too clumsy in terms of resource consumption and too complicate to set up your services, and thus you do **NOT** want to use openstack and want to design the system from the scratch.

1.1 Describe your design requirements to enable the above desired system. (hint: The design requirements will lead you to the system physical and software components design. Thus provide detailed design requirements including networking, storage, computation, access control, monitoring, etc.).

1.2. Describe your physical system setup (draw the system topology and illustrate why you want to setup in that way, i.e., pros and cons. Hint: provide your answer according to your provided system design requirements)

1.3. Describe what software functions that you want to establish on each physical machine, and their interrelations. (Describe carefully about the system components and how they provide you the desired features. Hint: provide your answer according to you provided system design requirements).

1.4. Describe what the limitation of your design is. If you have more resources, what change you want to make for your design and implementation in both physical and software.